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USSR COAL MINES EMPLOY EFFICIENT MINING METHODS

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Kuzbass Mine Uses Hydraulic Backfilling

In the Prokop'yevsk Mine imeni Stalin (Kuzbass), worked-out coal seams are filled by hydraulic backfilling methods. A special hydraulic section directed by D'yachenko has been set up for carrying out operations by this method.

The material for backfilling is crushed rock, which is delivered in cars from a quarry and is stored in bunkers at the surface of the mine. From the bunkers, the rock is moved to mixing chambers where it is combined with water and conveyed by pipe to the place to be backfilled.

In the hydraulic section, there are four mixing installations. Of the five persons per shift to service each installation, there are two backfillers and one operator each for the pump, conveyer, and winch.

The mixing chambers are set up at the surface of the mine, which permits an increased radius of delivery of backfilling material to the mine workings. Three of the mixing chambers are equipped with one pipeline each for the delivery of backfilling material to the worked-out area but the fourth has two pipelines and is therefore twice as productive as the others. The pipes, made of steel, have a diameter of 150 millimeters and have flanged joints.

In delivering the backfilling material to the worked-out area, a definite ratio between the water and the rock is maintained. If the material is too thick, the pipelines become clogged; if it is too thin, the backfilling equipment operates unproductively. Therefore the ratio of the water to the rock is carefully controlled by special apparatus.

All the mixing chambers and the working front where backfilling is in progress are hooked up with dial telephone connections. This permits strict direction of backfilling work and a prompt check on all operations. The amount of backfilling material delivered is determined by instruments on the switchboard.

Proper work organization has permitted workers in the hydraulic section to deliver to the mine 1,200 cubic meters of backfilling material daily, or 500 cubic meters above their quota.

Retreat Mining Spreads in Donbass

The fifth western face of Livenka Mine No 2 of the Budennovugol' Trust (Stalinugol' Combine) is being worked by retreat mining. In this area, the coal seam is 0.9 meter thick, the roof and floor of the seam contain clayey shale, and the angle of dip varies from 3 to 18 degrees.

A comparison of performance indexes of the fifth western face with those of the fourth eastern face, which is working the same seam by the old method of advance mining, indicates the advantage of the new method. Labor productivity at the fifth western face is 38 percent higher than at the fourth eastern face, the monthly advance of the face is 30 percent greater, and the outlay in wages is 2 rubles 62 kopeks less per ton of coal extracted. Coal losses are decreased since there is no need of leaving pillars to support the passages.

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At Naklonnaya Mine No 12 of the same trust, the sixth western face is worked by retreat mining. Here, coal is extracted from the Smolyaninovskiy seam. The labor productivity of this face is 28 percent higher than that of the fourth western face, which works the same seam by the old method of advance mining. At the same time, the consumption of mine timbers is 37 percent less and the outlay for wages per ton of coal extracted is 2 rubles 30 kopeks less than at the fourth western face.

The 36th eastern face of Chekist Mine No 10 is using retreat mining, under favorable circumstances. Coal is hauled to the front sectional crosscut and then along a group passage to the shaft. Delivery to the front passage makes it possible to liquidate passages in the worked-out area of the 36th face and, as a result, expenses for maintaining workings are reduced to one third their former figure. In addition, labor productivity and the advance of the face are increased 25 percent.

At Aleksandrovka Mine No 4 of the Kuybyshevugol' Trust, the third eastern face has converted to retreat mining. The advance of the face is 20 percent greater and labor productivity is 35 percent higher than formerly. At the same time, expenses for repair of mine workings are only one third the former amount and the outlay for wages per ton of coal extracted has been reduced 6 rubles.

Great changes have taken place in the "Zolotarka-Vostok" section of the Gorlovka mine, Kochegarka No 1-3. A steeply dipping seam, 0.64 meter thick, is being worked. Since conversion to retreat mining, labor productivity for the section has almost doubled, the advance of the face has increased 77 percent, and consumption of mine timbers has dropped 35 percent.

If performance indexes of faces converted to the retreat method of working mine fields are compared with those of the remaining faces of the Stalinugol' Combine, it will be indicated that the new method of working yields the following results: an average 20-25 percent increase in labor productivity, a 20-40 percent increase in the advance of the face, a 35-50 percent reduction in expenses for maintenance of workings, and a 10-20 percent reduction in losses of coal.

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